

**OPERATING SYSTEM KERNEL-ASSISTED, SELF-BALANCED, ACCESS-
PROTECTED LIBRARY FRAMEWORK IN A RUN-TO-COMPLETION
MULTI-PROCESSOR ENVIRONMENT**

ABSTRACT

5 A method for managing multiple processors in the execution of one or
more processes in a task-based library platform. The one or more processes are
partitioned into highly granulized sub-tasks from a library calling process, whereby each
sub-task has a protection attribute associated with it. The protection attribute designates
processing resources that a processor may use in the execution of the sub-task. The sub-
10 tasks are placed in a central task queue, whereby idling processors in the multiple
processor system obtain consecutive sub-tasks in the queue until all the processes have
been executed. Each processor executes a sub-task using only those processing resources
that have been designated as being available by the protection attribute of the sub-task.
The atomic execution results of the one more sub-tasks may then be combined into an
15 execution result for the process. Also provided is a task-based library for processor
management.